Level 6 Diploma in Electrical Power Engineering - Overhead Lines (2343-33)

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Unit handbook

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Contents

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1 About this document

This document contains the unit titles, accreditation numbers and content for the Level 6 Diploma in Electrical Power Engineering – Overhead Lines.

The qualification, attesting to work-place competence, has been developed by City & Guilds in conjunction with power sector employers and the sector skills council Energy & Utility Skills (EU Skills), and is accredited on the Scottish Credit and Qualifications Framework (SCQF).

The structure of the qualification is made up of the following City & Guilds unit numbers:

- Group A mandatory core units (053, 054, 055)
- Group B optional skill-based units (064, 069, 070, 071, 072, 073, 074, 075, 076, 077, 078)

To achieve the full qualification **all** group A mandatory core units must be completed, along with a minimum of **two** group B optional skill-based units.

All of the performance criteria must be evidenced. In the case of each group A mandatory core unit the requisite evidence is attained through completion of the relevant skill based units on a minimum of **two** separate occasions.

Each unit in the qualification is delivered with ten knowledge questions and their range of acceptable answers (see this qualification's relevant questions and answers document for further details). These questions must be evidenced through either natural performance or professional discussion. In the context of the skill-based units these questions may provide evidence against the knowledge and understanding criteria, which have been lifted directly from the relevant national occupational standard. Where there are gaps further oral questioning or observation will be required to confirm the criteria has been met.

For standardisation, and where appropriate, the performance and knowledge criteria are:

- prescribed with range, scope and evidence requirements
- qualified by company policies and procedures; legislation and regulations.

This qualification is delivered in line with the requirements of EU Skills' assessment strategy (captured in the main qualification handbook) and in the same fashion as a Scottish Vocational Qualification (SVQ).

Unit 053 Organise the use of resources

This unit has been designed to ensure level three candidates in an electrical power engineering environment are able to plan, organise and control resources for self and others.

By completing this unit, you show you are competent to:

- plan the use of resources
- organise resources to be used
- control the use of resources.

Performance Criteria

To perform effectively in this unit, you need to evidence competent performance of all the criteria through completion of the skill based units over a minimum of **two** separate occasions.

Outcome 1: Plan the use of resources

1.1 Identify the work to be undertaken and the resources required to complete the activity to company standards

1.2 Create a plan of action to use the identified resources in a safe, time efficient and cost effective manner in line with company procedures

1.3 Identify all parties who will be affected by the planned work and the actions required to meet their requirements in line with company procedures (e.g. notification of system outage, provision of generator, access permission, traffic control, signs and barriers)

Outcome 2: Organise resources to be the used

2.1 Organise the availability of the resources for the work required using company procedures and systems. Evidence to include having organised **all** of the following resources at least **once** over a minimum of **two** separate occasions (e.g. two resources on one occasion and two on another):

- People
- Materials
- Plant/machinery

Tools/equipment

2.2 Confirm the organised resources are available and ready for use at the correct location at the time required

Outcome 3: Control the use of resources

3.1 Inform all affected parties of the work to be undertaken and their responsibilities in line with company procedures

3.2 Co-ordinate the use of resources ensuring they are used in accordance with company policy and procedures

3.3 Monitor the effective use of the resources, taking prompt action where necessary to improve or rectify situations safely and efficiently

3.4 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Resource availability
- Change in work plan
- Safety issuesd
- Time constraints

3.5 Report/record completion of the work carried out in accordance with company procedures

Unit 054 Control of working parties

This unit has been designed to ensure that level three candidates in an electrical power engineering environment are able to plan, organize and control the working activities of self and others.

By completing this unit, you show you are competent to:

- plan and organise working parties
- control the working party.

Performance Criteria

To perform effectively in this unit, you need to evidence competent performance of all the criteria through completion of the skill based units over a minimum of **two** separate occasions.

Outcome 1: Plan working party control

1.1 Correctly identify the work location using relevant information

1.2 Conduct a pre work site risk assessment completing relevant documentation in accordance with health and safety requirements and company procedures

1.3 Identify the work to be undertaken and the individuals forming the working party or parties under their control

1.4 Identify a work plan to use the work force in a safe, time efficient and cost effective manner; in line with company procedures. Evidence to include **all** of the following documents:

- Safety documentation
- Risk assessments
- Work instructions
- Plans/diagrams

Outcome 2: Organise the working party

2.1 Communicate the work plan clearly and effectively to all relevant persons under their control

2.2 Inform all relevant parties of the safety requirements and their responsibilities in line with the risk assessment and company procedures

2.3 Confirm the information given has been understood and provide clarification where needed

Outcome 3: Control the working party

3.1 Co-ordinate the working party ensuring safe working practices are maintained throughout the duration of the work in accordance with company procedures. Evidence to include the co-ordination of a working party of **two** or **more** people on **two** separate occasions (e.g. A working party of **two** may consist of you and one other person)

3.2 Monitor the effectiveness of the work plan, taking prompt action where necessary to improve or rectify situations safely and effectively

3.3 Obtain information from the working party to confirm the intended objectives have been achieved

3.4 Confirm all members of the working party have ceased work and that all tools and equipment have been accounted for before considering the work as complete

3.5 Inform all members of the working party thatthe work activity is complete and that no further work must take place

3.6 Report/record the work in accordance with company procedures

3.7 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Change in work plans
- Third parties
- Safety issuesd
- Control of work party

Unit 055 Produce, communicate and record technical information

This unit has been designed to ensure that level three candidates in an electrical power engineering environment are able to produce written and diagrammatic technical information; communicate information to other parties; complete records relating to completed activities and performance.

By completing this unit, you show you are competent to:

- produce relevant information to allow self and others to complete work activities
- communicate technical information to others to carry out work activities
- record and report technical information on work activities completed by self and others.

Performance Criteria

To perform effectively in this unit, you need to evidence competent performance of all the criteria through completion of the skill based units over a minimum of **two** separate occasions.

Outcome 1: Produce relevant information to allow self and others to carry out work activities

1.1 Produce written/electronic text information to allow work activities to be carried out.
Evidence to include **three** of the following:

- Risk assessments
- Method statements
- Planning documentation
- Resource ordering documentation
- Safety documentation
- Reference table/chart
- Job instructions
- Test schedules

1.2 Produce diagrammatic/pictorial information to allow work activities to be carried out.
Evidence to include **three** of the following:

- Site plans/sketches
- Installation drawings
- Modification drawings
- Repair drawings
- Connection/disconnection drawings
- Wiring/circuit diagrams
- Photographic information

Outcome 2: Communicate technical information to others to carry out work activities

2.1 Communicate technical information to others clearly and effectively. Evidence to include communication for **all** of the following:

- Verbal to one person
- Verbal to more than one person
- Written/electronic text
- Diagrammatic/pictorial

2.2 Confirm that information has been understood and provide clarification where requested

Outcome 3: Record/report technical information on work activities completed by self and others

3.1 Complete documentation to record work activities completed by self and others; evidence to include **three** of the following:

- Work instructions
- Safety documentation
- Updated plans/drawings
- Completed testing activities
- Reports
- Work schedules

3.2 Store/record all completed documentation in accordance with company procedures

3.3 Report any inconsistencies or inaccuracies in information sources to the appropriate person in line with company procedures

Unit 064 High voltage switching operations

This unit is about high voltage switching operations in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that the completed switching operation meets the standards set by the organisation. It also involves the rigorous application of rules, regulations and work instructions to ensure that work is performed and completed safely without causing risk of injury to self and others.

By completing this unit, you show you are competent to:

- Plan for high voltage switching operations
- Prepare for high voltage switching operations
- Perform high voltage switching operations
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan to undertake high voltage switching operations

1.1 Identify the correct work location using available information

1.2 Conduct a site-specific risk assessment, completing required documentation in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, number of switching operations and sequence of tasks

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to undertake high voltage switching operations

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Apply appropriate control measures in line with risk assessment requirements and company procedures to ensure the work area is in a safe and suitable condition for work to be undertaken (e.g. signs, inform others of activities/whereabouts, control/removal of hazards)

2.3 Select and prepare tools and equipment compatible with the work plan and risk assessment

2.4 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.5 Identify the circuit to be worked on, including its points of isolation, using relevant information in line with company policy and procedures

2.6 Identify and inspect the apparatus to be operated, in line with company policy and procedures

2.7 Inform System Control of the intention to commence the switching operation in line with company procedures

2.8 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out high voltage switching operations

3.1 Perform the switching operations of a network using selected tools and equipment, in line with the work plan, risk assessment and company procedures. Switching operations to include **three** from the following:

- HV switchgear
- HV circuit Breaker
- HV protection
- HV fuses
- HV isolator/sectionaliser

3.2 Confirm the completed switching operation has met the requirements of the work plan

3.3 Record the switching operation in line with company procedures

3.4 Report the completion of the switching operation with System Control in accordance with company procedures

3.5 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Equipment/apparatus
- Environmental/site conditions
- Safety issues
- Electrical loading
- Effects of other people

3.6 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.7 Complete all required post activity documentation in line with company policy

3.8 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.9 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 How to read and interpret procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use

5.3 What processes and procedures need to be followed and complied with when performing switching operations

5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.5 What personal protective equipment needs to worn when undertaking work activities

5.6 How to maintain safe working and environmental practices throughout the duration of the work

5.7 How to minimise risks to self and others when undertaking work activities

5.8 Know the company work instruction, information and reporting systems and documentation

5.9 How to respond to the different types and categories of emergency situations that might occur

5.10 The sequence of processes and procedures that need to be followed and applied when performing switching operations

5.11 How to recognise and report inaccurate and incorrect work instructions and documentation

Unit 069 Low voltage overhead line switching operations

This unit is about low voltage overhead line switching operations in an electrical power engineering environment. It includes the processes and procedures to be followed to make sure that the completed switching operation meets the standards set by the organisation. It also involves the rigorous application of rules, regulations and work instructions to ensure that work is performed and completed safely without causing risk of injury to self and others.

By completing this unit, you show you are competent to:

- Plan to undertake low voltage switching operations
- Prepare to undertake low voltage switching operations
- Perform low voltage switching operations
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan to undertake low voltage switching operations

1.1 Identify the correct work location using available information

1.2 Conduct a site-specific risk assessment, completing required documentation in line with company procedures and health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, number of switching operations and sequence of tasks

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to undertake low voltage switching operations

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety requirements

2.2 Select and prepare tools and equipment compatible with the work plan and risk assessment

2.3 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.4 Select, inspect and prepare suitable access and egress equipment to carry out the identified work in accordance with company procedures

2.5 Identify the low voltage circuit to be worked on, including its points of isolation, using relevant information in line with company policy and procedures

2.6 Identify and inspect the apparatus to be worked on, in line with company policy and procedures

2.7 Apply appropriate control measures in line with risk assessment requirements and company procedures to ensure the work area is in a safe and suitable condition for work to be undertaken (e.g. person in attendance when working at height, control/removal of hazards, shrouding, rescue equipment available)

2.8 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out low voltage switching operations

3.1 Perform switching operations, using selected tools and equipment, in line with the work plan, risk assessment and company procedures. Evidence to include three of the following switching operations performed on separate occasions on a live low voltage overhead network:

- Pole mounted LV mains fuses
- Overhead line bows/jumpers
- Overhead line isolators
- Ground mounted LV mains fuses/links
- Transformer links
- Castelle/Interlocked systems

3.2 Perform all relevant testing procedures in line with company procedures

3.3 Confirm the completed switching operation has met the requirements of the work plan

3.4 Record and report the switching operation in line with company procedures

3.5 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Environmental conditions
- Equipment conditionc) Electrical testing
- Voltage/current loading
- Access/egress restrictions
- Effects of other people

3.6 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.7 Complete all required post activity documentation in line with company policy

3.8 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.9 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 How to read and interpret procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use

5.3 What processes and procedures need to be followed and complied with when performing switching operations

5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.5 What personal protective equipment needs to worn when undertaking work activities

5.6 How to maintain safe working and environmental practices throughout the duration of the work

5.7 How to minimise risks to self and others when undertaking work activities

5.8 Know the company work instruction, information and reporting systems and documentation

5.9 How to respond to the different types and categories of emergency situations that might occur

5.10 The sequence of processes and procedures that need to be followed and applied when performing switching operations

5.11 How to recognise and report inaccurate and incorrect work instructions and documentation

Unit 070 Overhead line fault diagnosis

This unit is about overhead line fault diagnosis in an electrical power engineering environment. It involves the rigorous use and application of diagnostic tools and techniques to establish the route cause of a fault. It also involves making recommendations on what actions need to be taken to rectify the fault.

By completing this unit, you show you are competent to:

- Plan to diagnose faults on overhead lines
- Prepare to diagnose faults on overhead lines
- Diagnose faults on overhead lines
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas

Outcome 1: Plan to diagnose faults on overhead lines

1.1 Identify the correct work location using available information

1.2 Conduct a site-specific risk assessment, completing required documentation in line with company procedures and health and safety regulations

1.3 Plan the work to be undertaken to comply with company policy and procedures and in line with risk assessment requirements, taking into account factors such as location, content, sequence of tasks and personnel

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to diagnose faults on overhead lines

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Select and prepare tools and equipment compatible with the work plan and risk assessment

2.3 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.4 Identify the circuit to be worked on, including its points of isolation, using relevant information in line with company policy and procedures

2.5 Identify and inspect the apparatus to be tested, in line with company policy and procedures

2.6 Apply appropriate control measures in line with risk assessment requirements and company procedures to ensure the work area is in a safe and suitable condition for work to be undertaken (e.g. person in attendance when working at height, control/removal of hazards, shrouding, rescue equipment available)

2.7 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out diagnosis of faults on overhead lines

3.1 Review and use all relevant information on the symptoms and problems associated with the fault

3.2 Perform diagnostic operations using selected tools and equipment to determine the type and position of a fault on **both** HV and LV overhead networks. Evidence to including the use of **all** of the following diagnostic techniques (e.g. two techniques on a HV fault and two on a LV fault):

- Visual examination
- Physical examination
- Electrical testing
- Interpretation of information from plans

3.3 Conduct all diagnostic operations in line with the work plan, risk assessment and company procedures

3.4 Identify and locate the fault and recommend actions needed to effect the repair

3.5 Record and report the operation in line with company procedures

3.6 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Fault identification
- Safety issues
- Access/egress
- Environmental/site conditions

3.7 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.8 Complete all required post activity documentation in line with company policy

3.9 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.10 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with company and statutory procedures

3.11 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 The processes, procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use

5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use

5.4 Read and interpret instructions on how to use and maintain fault diagnosis tools and equipment

5.5 What personal protective equipment needs to worn when undertaken work activities

5.6 What materials and substances are dangerous and hazardous to health

5.7 How to maintain safe working and environmental practices throughout the duration of the work

5.8 How to minimise risks to self and others when undertaking work activities

5.9 Know the company work instruction, information and reporting systems and documentation

5.10 How to respond to the different types and categories of emergency situations that might occur

5.11 What fault finding and diagnostic tools, techniques and procedures should be used for a given purpose and situation

5.12 How to recognise and report inaccurate and incorrect work instructions and documentation

Unit 071 Live line operations using insulated rods

This unit is about live line operations using insulated rods. It involves inspecting the completed work to make sure it meets quality assurance and operating requirements. It also involves the following of procedures to ensure that safe working practices are adopted throughout the duration of the work.

By completing this unit, you show you are competent to:

- Plan to undertake live line operations using insulated rods
- Prepare to undertake live line operations using insulated rods
- Perform live line operations using insulated rods
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan to undertake live line operations using insulated rods

1.1 Identify the correct work location using available information

1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, sequence of tasks and personnel

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to undertake live line operations using insulated rods

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Select and prepare tools and live line equipment compatible with the work plan and risk assessment

2.3 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.4 Identify the circuit to be worked on, including its points of protection, using relevant information in line with company policy and procedures

2.5 Identify the live line apparatus to be worked on and conduct a pre operation inspection, in line with company procedures

2.6 Apply appropriate control measures in line with risk assessment requirements and company procedures to ensure the work area is in a safe and suitable condition for the work to be undertaken (e.g. exclusion zone around work area, control/removal of hazards)

2.7 Inform System Control of the intention to commence the live line operation in line with company procedures

2.8 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out live line operations using insulated rods

3.1 Perform live line operations safely and effectively in line with work plan, risk assessment and company procedures. Evidence to include **three** different company approved Live Line operations

3.2 Check the finished product meets the work requirements and company standards, referring to the specification where applicable

3.3 Record the operation in accordance with company procedures where applicable

3.4 Report the completion of live line operations with System Control in accordance with company procedures

3.5 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Equipment/apparatus
- Environmental/site conditions
- Safety issues
- Electrical loading
- Effects of other people

3.6 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.7 Complete all required post activity documentation in line with company policy

3.8 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.9 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with company and statutory procedures

3.10 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use

5.3 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.4 What personal protective equipment needs to worn when undertaken work activities

5.5 What materials and substances are dangerous and hazardous to health

5.6 How to maintain safe working and environmental practices throughout the duration of the work

5.7 How to minimise risks to self and others when undertaking work activities

5.8 Know the Know the company work instruction, information and reporting systems and documentation

5.9 How to respond to the different types and categories of emergency situations that might occur

5.10 How to read, interpret and complete authorisation procedures and documentation

5.11 Recognise and report inaccurate and incorrect work instructions and documentation

5.12 Electrical and mechanical inspection and testing principles, methods, processes and procedures

5.13 Live line working practices and procedures and safety rules and regulations

Unit 072 Hotstick operations

This unit is about hotstick operations in an electrical power engineering environment. It involves inspecting the completed work to make sure it meets quality assurance and operating requirements. It also involves the following of procedures to ensure that safe working practices are adopted throughout the duration of the work.

By completing this unit, you show you are competent to:

- Plan to perform hotstick operations
- Prepare to perform hotstick operations
- Perform hotstick operations
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan to perform hotstick operations

1.1 Identify the correct work location using available information

1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, sequence of tasks and personnel

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to perform hotstick operations

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Select and prepare tools and hotstick equipment compatible with the work plan and risk assessment

2.3 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.4 Identify the circuit to be worked on, including its points of protection, using relevant information in line with company policy and procedures

2.5 Identify the apparatus to be worked on and conduct a pre operation inspection, in line with company procedures

2.6 Apply appropriate control measures in line with risk assessment requirements and company procedures to ensure the work area is in a safe and suitable condition for the work to be undertaken (e.g. exclusion zone around work area, control/removal of hazards)

2.7 Inform System Control of the intention to commence the hotstick operation in line with company procedures

2.8 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out hotstick operations

3.1 Perform hotstick operations safely and effectively in line with work plan, risk assessment and company procedures. Evidence to include **three** different company approved hotstick operations

3.2 Check the finished product meets the work requirements and company standards, referring to the specification where applicable

3.3 Record the operation in accordance with company procedures where applicable

3.4 Report the completion of live line operations with System Control in accordance with company procedures

3.5 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Equipment/apparatus
- Environmental/site conditions
- Safety issues
- Electrical loading
- Effects of other people

3.6 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.7 Complete all required post activity documentation in line with company policy

3.8 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.9 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with company and statutory procedures

3.10 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use

5.3 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.4 What personal protective equipment needs to worn when undertaken work activities

5.5 What materials and substances are dangerous and hazardous to health

5.6 How to maintain safe working and environmental practices throughout the duration of the work

5.7 How to minimise risks to self and others when undertaking work activities

5.8 Know the company work instruction, information and reporting systems and documentation

5.9 How to respond to the different types and categories of emergency situations that might occur

5.10 How to read, interpret and complete authorisation procedures and documentation

5.11 Recognise and report inaccurate and incorrect work instructions and documentation

5.12 Electrical and mechanical inspection and testing principles, methods, processes and procedures

5.13 Live line working practices and procedures and safety rules and regulations

Unit 073 Hotglove operations

This unit is about hotstick operations in an electrical power engineering environment.. It involves inspecting the completed work to make sure it meets quality assurance and operating requirements. It also involves the following of procedures to ensure that safe working practices are adopted throughout the duration of the work.

By completing this unit, you show you are competent to:

- Plan to perform hotglove operations
- Prepare to perform hotglove operations
- Perform hotglove operations
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan to perform hotglove operations

1.1 Identify the correct work location using available information

1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, sequence of tasks and personnel

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to perform hotglove operations

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Select and prepare tools and hotglove equipment compatible with the work plan and risk assessment

2.3 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.4 Identify the circuit to be worked on, including its points of protection, using relevant information in line with company policy and procedures

2.5 Identify the apparatus to be worked on and conduct a pre operation inspection, in line with company procedures

2.6 Apply appropriate control measures in line with risk assessment requirements and company procedures to ensure the work area is in a safe and suitable condition for the work to be undertaken (e.g. exclusion zone around work area, control/removal of hazards)

2.7 Inform system control of the intention to commence the hotglove operation in line with company procedures

2.8 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out hotglove operations

3.1 Perform hotglove operations safely and effectively in line with work plan, risk assessment and company procedures – to include **three** different company approved hotglove operations

3.2 Check the finished product meets the work requirements and company standards, referring to the specification where applicable

3.3 Record the operation in accordance with company procedures where applicable

3.4 Report the completion of hotglove operations with System Control in accordance with company procedures

3.5 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Equipment/apparatus
- Environmental/site conditions
- Safety issues
- Electrical loading
- Effects of other people

3.6 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.7 Complete all required post activity documentation in line with company policy

3.8 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.9 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with company and statutory procedures

3.10 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use

5.3 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.4 What personal protective equipment needs to worn when undertaken work activities

5.5 What materials and substances are dangerous and hazardous to health

5.6 How to maintain safe working and environmental practices throughout the duration of the work

5.7 How to minimise risks to self and others when undertaking work activities

5.8 Know the company work instruction, information and reporting systems and documentation

5.9 How to respond to the different types and categories of emergency situations that might occur

5.10 How to read, interpret and complete authorisation procedures and documentation

5.11 Recognise and report inaccurate and incorrect work instructions and documentation

5.12 Electrical and mechanical inspection and testing principles, methods, processes and procedures

5.13 Live line working practices and procedures and safety rules and regulations

Unit 074 Install and configure overhead line apparatus on steel tower structures

This unit is about installing and configuring overhead line apparatus on steel tower structures in an electrical power engineering environment. It involve completing installation activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finishes work meets the quality assurance and operating specifications set by the organisation.

By completing this unit, you show you are competent to:

- Plan to install and configure overhead line apparatus on steel tower structures
- Prepare to install and configure overhead line apparatus on steel tower structures
- Install and configure overhead line apparatus on steel tower structures
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan for work activities to install and configure overhead line apparatus at height on steel tower structures

1.1 Identify the correct work location using available information

1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, sequence of tasks and personnel

1.4 Inform all affected parties of their intended work plan, in accordance with company procedures

Outcome 2: Prepare resources to install and configure overhead line apparatus at height on steel tower structures

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Identify the correct structure and circuit to be worked on, in line with company procedures and work plan

2.3 Confirm the system is safe to work on in accordance with company procedures

2.4 Select and prepare tools and equipment compatible with the work plan and risk assessment

2.5 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.6 Select, inspect and prepare suitable access and egress equipment to carry out the identified work in accordance with company procedures

2.7 Perform a pre work inspection of the structure, reporting identified defects in line with company procedures

2.8 Apply appropriate control measures in line with risk assessment requirements and company procedures (e.g. person in attendance when working at height, control/removal of hazards, pennants/flags, rescue equipment available)

2.9 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out the installation and configuration of overhead line apparatus at height on steel tower structures

3.1 Ensure resources are raised, lowered and used safely in accordance with company procedures

3.2 Perform the installation and securing of the plant safely and effectively in line with the work plan, risk assessment and company procedures on **two** different steel tower structures

3.3 Install at least **two** different types of apparatus: e.g. Cable terminations, Surge arrestors, Telecommunications/fibre optics

3.4 Check the finished product meets the work requirements and company standards, referring to the specification where applicable

3.5 Perform relevant testing procedures, in line with company procedures and work plans, where applicable

3.6 Report and record the operation in accordance with company procedures where applicable

3.7 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Plant/apparatus
- Environmental conditions
- Structure condition
- Effects of other people
- Electrical connections

3.8 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.9 Complete all required post activity documentation in line with company policy

3.10 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.11 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with company and statutory procedures

3.12 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 How to read and interpret procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use

5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use

5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.5 What personal protective equipment needs to worn when undertaken work activities

5.6 What materials and substances are dangerous and hazardous to health
5.7 How to maintain safe working and environmental practices throughout the duration of the work
5.8 How to minimise risks to self and others when undertaking work activities
5.9 Know the company work instruction, information and reporting systems and documentation
5.10 How to respond to the different types and categories of emergency situations that might occur
5.11 How to install plant and apparatus using specified principles, methods, processes and procedures
5.12 How to recognise and report inaccurate and incorrect work instructions and documentation

Unit 075 Fault repair of overhead line apparatus on steel tower structures

This unit is about fault repair of overhead line and apparatus on steel tower structures in an electrical power engineering environment. It involves following routine fault rectification and repair procedures. It also involve inspecting the finished repair and rectification work to make sure it's operates in a manner that meets operating specifications and quality standards and criteria set by the organization.

By completing this unit, you show you are competent to:

- Plan to repair faults on overhead line assets at height
- Prepare to repair on overhead line assets at height
- Repair faults on on overhead line assets at height
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan for work activities to repair faults overhead line assets at height

1.1 Identify the correct work location using available information

1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, sequence of tasks and personnel

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to repair faults overhead line assets at height

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Identify the correct structure and circuit to be worked on, in line with company procedures and work plan

2.3 Confirm the system is safe to work on in accordance with company procedures

2.4 Select and prepare tools and equipment compatible with the work plan and risk assessment

2.5 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.6 Select, inspect and prepare suitable access and egress equipment to carry out the identified work in accordance with company procedures

2.7 Perform a pre work inspection of the structure, reporting identified defects in line with company procedures

2.8 Apply appropriate control measures in line with risk assessment requirements and company procedures (e.g. person in attendance when working at height, control/removal of hazards, pennants/flags, rescue equipment available)

2.9 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out the repair of faults on overhead line assets at height

3.1 Perform fault repairs safely and effectively in line with work plan, risk assessment and company procedures. Evidence to include **two** of the following:

- Conductors
- Apparatus
- Fittings
- Structure
- Anti-climbing devices

3.2 Check the finished product meets the work requirements and company standards, referring to the specification where applicable

3.3 Report and record the operation in accordance with company procedures where applicable

3.4 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Plant/apparatus
- Environmental/site conditions
- Structure condition
- Safety issues
- Effects of other people

3.5 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.6 Complete all required post activity documentation in line with company policy

3.7 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.8 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with company and statutory procedures

3.9 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 How to read and interpret procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use

5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use

5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.5 What personal protective equipment needs to worn when undertaken work activities

5.6 What materials and substances are dangerous and hazardous to health

5.7 How to maintain safe working and environmental practices throughout the duration of the work

5.8 How to minimise risks to self and others when undertaking work activities

5.9 Know the company work instruction, information and reporting systems and documentation

5.10 How to respond to the different types and categories of emergency situations that might occur

5.11 How to read, interpret and follow fault repair work instructions, processes and procedures

5.12 How to recognise and report inaccurate and incorrect work instructions and documentation

Unit 076 Inspection of overhead line steel tower networks

This unit is about inspection of overhead line steel tower networks in an electrical power engineering environment. It includes the processes and procedures that need to be rigorously and methodically followed to make sure that the finished work meets the quality assurance and operating specifications set by the organisation. It also involves using a range of tools and equipment that are fit for purpose and the wearing of personal protective equipment when performing work activities.

By completing this unit, you show you are competent to:

- Plan to inspect an overhead line network
- Prepare to inspect an overhead line network
- Inspect an overhead line network
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan for work activities to inspect an overhead line network

1.1 Identify the correct work location using available information

1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, sequence of tasks and lone working

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to inspect an overhead line network

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Select and prepare tools and equipment compatible with the work plan and risk assessment

2.3 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.4 Apply appropriate control measures in line with risk assessment requirements and company procedures (e.g. inform others of activities/whereabouts, control/removal of hazards)

2.5 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out the inspection of an overhead line network

3.1 Perform inspection of an overhead line network on **two** different occasions in line with work plan, risk assessment and company procedures

3.2 Perform relevant tower inspection procedures on at least **three** different tower structures.

3.3 Identify network conditions which do not meet the company specifications. Evidence to include **four** from the following:

- Corrosion to structure
- Ground stability
- Fittings damage
- Anti-climbing devices
- Signs & labels
- Insulator damage
- Conductor damage
- Clearance issues
- Third party issues
- Environmental/site issues

3.4 Record and report the inspection in accordance with company procedures

3.5 Record and report the results of test in accordance with company procedures, where applicable

3.6 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Hazardous conditions
- Faulty equipment
- Faulty network issues
- Access to site
- Wayleave issues

3.7 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.8 Complete all required post activity documentation in line with company policy

3.9 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.10 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 Read and interpret the procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use

5.3 What processes and procedures need to be followed and complied with when inspecting and preparing tools and equipment prior to use

5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks
5.5 What personal protective equipment needs to worn when undertaken work activities
5.6 What materials and substances are dangerous and hazardous to health
5.7 How to maintain safe working and environmental practices throughout the duration of the work
5.8 How to minimise risks to self and others when undertaking work activities
5.9 Know the company work instruction, information and reporting systems and documentation
5.10 How to respond to the different types and categories of emergency situations that might occur
5.11 What inspection processes and equipment to use for a specific and given purpose
5.12 How read and analyse inspection data, interpret and record findings
5.13 How to recognise and report inaccurate and incorrect work instructions and documentation

Unit 077 Complex earthing of overhead line transmission conductors

This unit is about complex earthing of overhead line transmission conductors in an electrical power engineering environment. It involves using tools and equipment in a safe, methodical and vigilant manner to make sure the earthing of plant and apparatus is conducted safely and in accordance with health and safety rules and regulations.

By completing this unit, you show you are competent to:

- Plan to carry out complex earthing of overhead line transmission conductors
- Prepare to carry out complex earthing of overhead line transmission conductors
- Perform complex earthing of overhead line transmission conductors
- Use and communicate data and information
- Resolve problems effectively and efficiently

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas

Outcome 1: Plan for work activities to carry out the complex earthing of overhead line transmission conductors

1.1 Identify the correct work location using available information

1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, sequence of tasks and personnel

1.4 Inform all affected parties of their intended work plan, in line with company procedures

Outcome 2: Prepare resources to carry out the complex earthing of overhead line transmission conductors

2.1 Select, inspect and wear Personal Protective Equipment (PPE) compatible with work plan, risk assessment and health and safety regulations

2.2 Identify the correct structure and circuit to be worked on, in line with company procedures and work plan

2.3 Confirm the system is safe to work on in accordance with company procedures

2.4 Select and prepare tools and equipment compatible with the work plan and risk assessment

2.5 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.6 Select, inspect and prepare suitable access and egress equipment to carry out the identified work in accordance with company procedures

2.7 Perform a pre work inspection of the structure, reporting identified defects in line with company procedures

2.8 Apply appropriate control measures in line with risk assessment requirements and company procedures (e.g. person in attendance when working at height, control/removal of hazards, pennants/flags, rescue equipment available)

2.9 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out the complex earthing of overhead line transmission conductors

3.1 Ensure resources are raised, lowered and used safely in accordance with company procedures

3.2 Apply earthing connectors in the correct sequence in accordance with company procedures on **two** different complex circuits, to include **one** double dressed earthing scheme

3.3 Check the finished earthing arrangements for compliance with the work requirements and company standards

3.4 Perform testing operations, in line with company procedures, where applicable

3.5 Record and report the relevant earthing information in accordance with company procedures

3.6 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Safety or earthing/bonding arrangements
- Environmental conditions
- Structure condition
- Earthing/bonding equipment
- Effects of other people

3.7 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.8 Complete all required post activity documentation in line with company policy

3.9 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.10 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with company and statutory procedures

3.11 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 How to read and interpret the procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use

5.3 What processes and procedures need to be followed and complied with when inspecting and preparing tools and equipment prior to use

5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.5 What personal protective equipment needs to worn when undertaken work activities

5.6 What materials and substances are dangerous and hazardous to health

5.7 How to maintain safe working and environmental practices throughout the duration of the work
5.8 How to minimise risks to self and others when undertaking work activities
5.9 Know the company work instruction, information and reporting systems and documentation
5.10 How to respond to the different types and categories of emergency situations that might occur
5.11 What handling techniques and equipment to adopt and use when earthing plant and apparatus
5.12 Know what the tools, techniques and processes to use when earthing plant and apparatus
5.13 How to recognise and report inaccurate and incorrect work instructions and documentation

Unit 078 Erection of steel tower structures

This unit is about the erection of steel tower structures in an electrical power engineering environment. It involve completing installation activities in a rigorous and methodical manner and the following of processes and procedures to make sure that the finishes work meets the quality assurance and operating specifications set by the organisation.

By completing this unit, you show you are competent to:

- Plan to erect steel tower structures
- Prepare to erect steel tower structures
- Erect steel tower structures
- Use and communicate data and information
- Resolve problems effectively and efficiently.

Performance Criteria

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 1: Plan to erect steel tower structures

1.1 Identify the correct work location using available information

1.2 Conduct a site specific risk assessment, completing required documentation, in line with health and safety regulations

1.3 Plan the work to be undertaken to comply with company procedures in line with risk assessment, taking into account factors such as location, content, sequence of tasks and personnel

1.4 Inform all affected parties of their intended work plan, in accordance with company procedures

Outcome 2: Prepare resources to erect steel tower structures

2.1 Identify the load to be moved, in line with work plan.

2.2 Select, inspect and wear Personal Protective Equipment (PPE) in line with work plan, risk assessment and health and safety regulations

2.3 Apply appropriate control measures to ensure the work area is in a safe and suitable condition for work to commence in line with risk assessment requirements and company procedures (e.g. signs/barriers, control/removal of hazards, site traffic control)

2.4 Establish the weight and stability of the load to be moved, in accordance with the work plan

2.5 Identify a lifting and moving technique, in line with company procedures, compatible with the weight and stability of the load

2.6 Select, inspect and prepare moving equipment capable of handling the weight and stability of the load

2.7 Select additional tools and equipment necessary to perform the operation

2.8 Check the tools and equipment are fit for purpose to carry out the identified work in accordance with company procedures

2.9 Report faults with tools, equipment and PPE, including that which is unavailable, in line with company procedures

Outcome 3: Carry out the erection of steel tower structures

3.1 Perform the assembly of the structure using selected tools and equipment in line with the work plan, risk assessment and company procedures on **two** different steel tower structures

3.2 Erect and secure all steelwork safely and effectively in line with company procedures and specifications

3.3 Check the finished product is compliant with required specifications, in line with company procedures

3.4 Deal with all problems encountered safely and efficiently, referring matters which cannot be rectified to the appropriate person; evidence to include **one** of the following problems:

- Equipment/materials
- Environmental/site conditions
- Structure,
- Effects of other people
- Use of resources

3.5 Work throughout the duration of the work in accordance with safe working and environmental practices, company procedures, health and safety regulations and environmental legislation

3.6 Complete all required post activity documentation in line with company policy

3.7 Ensure all tools and equipment are stored safely and appropriately in line with company procedures

3.8 Ensure hazardous and non hazardous waste materials are dealt with and disposed of in accordance with company and statutory procedures

3.9 Ensure the work area is left in a safe and tidy condition compatible with company procedures

Knowledge and Understanding

To perform effectively in this unit, you need to have evidence in the following areas.

Outcome 4: General

4.1 The main principles of health and safety and environmental legislation and regulations

4.2 The company reporting lines and authorisation roles and responsibilities

4.3 The company policies and procedures that directly impact on the work to be undertaken

Outcome 5: Work area

5.1 The company procedures and processes for reporting problems with tools and equipment

5.2 How to read and interpret procedures and information sources used to make sure that tools and equipment are fit for purpose and safe to use

5.3 Processes and procedures to be followed for inspecting and preparing tools and equipment prior to use

5.4 Read and interpret instructions on how to use tools and equipment safely and the processes and requirements for undertaking routine checks

5.5 What personal protective equipment needs to worn when undertaken work activities

5.6 What materials and substances are dangerous and hazardous to health

5.7 How to maintain safe working and environmental practices throughout the duration of the work

5.8 How to minimise risks to self and others when undertaking work activities

5.9 Know the company work instruction, information and reporting systems and documentation

5.10 How to respond to the different types and categories of emergency situations that might occur

5.11 How to install plant and apparatus using specified principles, methods, processes and procedures

5.12 How to recognise and report inaccurate and incorrect work instructions and documentation

Useful contacts

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Centres Exam entries, Registrations/enrolment, Certificates, Invoices, Missing or late exam materials, Nominal roll reports, Results	E: **centresupport@cityandguilds.com**
Single subject qualifications Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	E: **singlesubjects@cityandguilds.com**
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Walled Garden Re-issue of password or username, Technical problems, Entries, Results, GOLA, Navigation, User/menu option, Problems	E: **walledgarden@cityandguilds.com**
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